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Correlates of PrEP Uptake Among Young Sexual Minority Men and Transgender Women in New York City: The Need to Reframe "Risk" Messaging and Normalize Preventative Health

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Abstract

Pre-exposure prophylaxis (PrEP) is an effective form of HIV prevention, but young sexual minority men face myriad barriers to PrEP uptake. Participants ($n = 202$) completed a survey on healthcare experiences and beliefs about HIV and PrEP. While 98% of the sample knew about PrEP, only 23.2% reported currently taking PrEP. Participants were more likely to be taking PrEP if they received PrEP information from a healthcare provider and endorsed STI-related risk compensation. Conversely, PrEP uptake was less likely among those with concerns about medication use and adherence. While there were no racial/ethnic differences in PrEP uptake, there were differences in correlates of PrEP use for White participants and participants of color. To facilitate PrEP uptake, clinicians should provide PrEP education and screen all patients for PrEP candidacy. Additionally, public health messaging must reframe HIV "risk", highlight benefits of STI testing, and emphasize the importance of preventive healthcare for SMM.

Keywords

Sexual minority men; HIV prevention; HIV; PrEP; Health communication

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Introduction

Pre-exposure prophylaxis (PrEP), a daily oral antiretroviral medication (i.e., *Truvada* [emtricitabine and tenofovir disoproxil fumarate] or *Descovy* [emtricitabine and tenofovir alafenamide]), is an effective biobehavioral tool for preventing HIV seroconversion following exposure [1, 2]. PrEP marketing efforts have heavily focused on sexual minority men (SMM) [3, 4] and transgender women [3, 5] as populations that remain disproportionately burdened by the HIV epidemic yet many within these communities continue to face a multitude of barriers that prevent PrEP access and utilization [6, 7]. Thus, despite the effectiveness of PrEP for HIV prevention, only a small percentage of people who could benefit from the drug have been prescribed by a medical provider [8]. Recent surveillance suggests that PrEP adoption is rising among young SMM, albeit at slower rates among racial and ethnic minority communities [9]. This has been attributed to experiences of homophobia and racism in healthcare contexts, as well as to broader structural racism, socioeconomic inequality and homophobia [10–13]. Successful navigation of health systems and medical care for young SMM and transgender women, especially in the contexts of sexual health care, demand heightened attention not only to physical qualities of access (e.g., proximity and transportation), but also to social qualities that foster trusting relationships between providers and patients, such as non-judgmental interactions and shared medical decision-making [14–16].

Another considerable barrier to PrEP utilization is healthcare providers' lack of knowledge and awareness. With the exception of California, initiating PrEP requires a prescription from a physician in the United States, rendering clinicians as gatekeepers of the medication [17]. Studies have found that even providers who have moderate-to-high knowledge of PrEP have demonstrated limited integration of PrEP discussions into their HIV prevention communication strategies, suggesting that approaches to engage patients and serve as an effective HIV prevention resource are not being maximized, especially for patients who could benefit the most from PrEP [18–22]. In addition to a lack of knowledge, physicians have voiced concerns regarding the potential side effects and cost imposed on their patients [23, 24].

The extant literature also suggests that many clinicians have concerns about patients engaging in risk compensation (e.g., decreased condom use or increased number of sexual partners following PrEP uptake). These concerns may inhibit providers' willingness to prescribe PrEP, and may negatively impact SMM's interest in or perceptions of PrEP [25]. Researchers have observed inconsistent results when assessing the relationship between PrEP uptake and risk compensation; specifically, some studies with young SMM have provided evidence for risk compensation post-PrEP initiation [26, 27], while others indicate that only a small subset of participants reported stopping or intending to stop using condoms should they or their partners initiate PrEP [28–31]. These inconsistent findings suggest that providers' conversations with patients are a critical opportunity to assess their patients' motivations for PrEP use, and to address combination HIV prevention approaches and risk reduction strategies.

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Researchers have begun to prioritize the potential role of medical mistrust imposed on PrEP rollout strategies [32–34]. In health studies with SMM, medical mistrust contributes to longer gaps between medical visits, decreased willingness to disclose sexual partner status to providers, and decreased acceptability of new medications [13, 19, 32, 35, 36]. Prior studies have also begun to elucidate medical mistrust's attenuating impact on engaging SMM and transgender women to seek and initiate PrEP. One qualitative study found that while both Black and White sexual minority men shared skepticism and concerns about PrEP's effectiveness and potential negative consequences, Black men's beliefs were more grounded in medical mistrust and experiences of homophobic and HIV-related stigma [13]. Conversely, a recent study on barriers and facilitators to PrEP use among transgender women found that Black women who reported lower educational attainment were less likely than their counterparts to endorse medical mistrust and more likely to have received PrEP education from healthcare providers [6]. While these studies provide important contributions to understanding the implications of medical mistrust and beliefs about PrEP among racial/ethnic, sexual, and gender minority populations, to our knowledge, none have assessed how and to what extent such beliefs are associated with PrEP uptake.

New York City's high HIV prevalence has solidified itself as a prioritized epicenter for informing implementation efforts that address the pillars (e.g., Diagnose and Prevent) of the *Ending the HIV Epidemic* initiative. To address these gaps and to expand PrEP research in a high-priority region, we sought to further elucidate the associations that healthcare experiences, PrEP-related beliefs, and medical mistrust have with current PrEP use in a cohort of young SMM (YSMM) and transgender women in New York City [37].

Methods

Study Design

The mixed-methods Health-Related Beliefs Study supplemented the P18 Cohort Study, a prospective cohort study which explored HIV, substance use, and mental health in a racially/ethnically and socioeconomically diverse sample of young adult men and transgender women who have sex with men; parent study details have been published elsewhere [37–39]. From February 2018 to February 2019, participants enrolled in Phase 2 were invited to enroll in this sub-study during their biannual P18 study visit, by phone, or by email. Those with an HIV-negative serostatus, confirmed by HIV antibody testing during their P18 study visit, were eligible to participate in this study. Eligible participants completed a brief, computer-based survey which included questions about experiences with healthcare providers, thoughts about the healthcare system, and beliefs about sexual health-related issues such as HIV, other STIs, and PrEP. The sample of sub-study participants ($n = 202$) did not differ significantly from the Phase 2 parent study sample ($n = 665$) based on key sociodemographic factors including race, gender, sexual orientation, and self-rated health. All participants provided written informed consent for this study, and all activities were approved by the New York University Institutional Review Board.

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Measures

Sociodemographic Variables—Race/ethnicity was measured with two separate items asking participants to identify their ethnicity ("Hispanic" or "non-Hispanic") and race ("African American/Black", "Asian or Pacific Islander", "American Indian/Alaska Native", "White", "Hispanic/Latinx", and/or "Other"). For analytic purposes, these were re-coded as a single variable, with categories collapsed into Hispanic/Latinx (any race), Black non-Hispanic, Other non-Hispanic, and White non-Hispanic. Gender was coded as "cisgender male" or "transgender woman/non-binary". Additionally, participants were asked about their preferred anal sex positioning, which was recoded as "top" for those who were prefer exclusively or primarily being the insertive partner, "bottom" for those who prefer exclusively or primarily being the receptive partner, and "vers" for those who indicated a versatile position preference or no strong preference for acting as the insertive or receptive partner.

Health Care—Participants' current health insurance status was dichotomized as "yes" or "no". Those who indicated being insured were asked about the type of insurance, and these responses were collapsed to "parents' insurance", "employer insurance", "Medicare/Medicaid", or "other". Participants were also asked to identify the place where they typically receive medical care—with options collapsed to "primary care provider", "public or community health clinic", "ER or urgent care", and "I do not receive medical care"—and whether it is difficult for them to pay their health care costs—with responses trichotomized to "somewhat or extremely difficult", "neither easy nor difficult", and "somewhat or extremely easy". Additionally, participants self-rated their health as "extremely good", "somewhat good", "neither good nor bad", "somewhat bad", or "extremely bad", which was trichotomized for further analysis.

Medical Mistrust—Several measures were used to assess medical mistrust, "conspiracy beliefs", and associated constructs. All measures used a 5-point Likert scale with responses ranging from "strongly disagree" to "strongly agree" and, after items were re-coded (i.e., positively worded items reverse-coded) as appropriate, were aggregated into a mean score (range 1–5) with higher scores indicating higher levels of mistrust or greater endorsement of "conspiracy beliefs". Additionally, we calculated Cronbach's alpha for each measure to assess internal consistency of each measure within the sample. An HIV conspiracy beliefs scale, based in part on Bogart's 2005 HIV/AIDS Conspiracy Belief Scale [40], utilized nine of Bogart's original 14 items and included an additional 18 items that the research team developed to assess government and pharmaceutical industry-related conspiracy beliefs ($\alpha = 0.96$) (for a conspiracy belief scale totaling 27 items). The nine items (of the original 14 Bogart HIV/AIDS Conspiracy Belief scale) were selected based on the items deemed most relevant to the population based on the extant literature (we also changed "AIDS" to "HIV" to reflect current language). The additional 18 items were created based on recent previous studies that found that HIV-related conspiracy beliefs related to the role of the government and pharmaceutical industry were common among participants [94]. The 12-item Group-Based Medical Mistrust Scale [41], assessing medical mistrust based on minority group status, was modified to create two separate scales for sexual and gender minority group ($\alpha = 0.91$) and racial/ethnic group ($\alpha = 0.90$). The Trust in Physician

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Scale [42], with the 11 items modified to replace "doctor" with "healthcare provider", was used to measure provider-specific mistrust (α = 0.50). Due to the low Cronbach's alpha score, only descriptive data are presented, and the scale was not used in further analyses. A modified version of the Medical Mistrust Index [43], retaining 13 of 17 items, measured medical mistrust specific to healthcare organizations (α = 0.85). Four items were removed from the MMI based on relevance to the purpose of the study (please refer to the "Appendix 1" section for the items retained from each scale). The Beliefs about Medicines Questionnaire–General [44] was used to assess general beliefs about medications, including beliefs about their overuse and harm, with two items added and one removed to create a 19-item measure (α = 0.82). The two additional items included "People are prescribed too many medications these days" and "People shouldn't take a medication until they really need it".

Pre–exposure Prophylaxis (PrEP)—This study took place prior to the approval of Descovy for PrEP in October 2019. As Truvada was the only option for PrEP during our study period, PrEP and Truvada were used interchangeably in our survey. Participants were asked if they had ever heard of PrEP/Truvada, and were able to respond yes or no. Those who responded yes were asked a series of questions about current and lifetime PrEP use, motivations for using or not using PrEP, sources of information about PrEP, anticipated PrEP stigma, and other PrEP beliefs related to medication and condom use, all of which were created for this study. Current PrEP use was a dichotomous yes/no question, and lifetime PrEP use was calculated by combining this with the item asking those not currently taking PrEP if they had ever previously done so. Those who were aware of PrEP were asked where they have received information about PrEP and could select all applicable response options including "healthcare provider", "friend", "family member", and "social media". Regardless of current PrEP use, all who were aware of PrEP were asked if they anticipated experiencing stigma from a number of individuals/groups and indicated anticipated beliefs that others might have if they knew the participant was taking PrEP. These items had a 5-item Likert scale response from "strongly disagree" to "strongly agree", which was dichotomized for analyses to focus on the "somewhat or strongly agree" responses. The anticipated beliefs based on a participant's hypothetical PrEP use were coded as having negative (e.g., "If people know I take PrEP, they will think I am promiscuous.") or positive connotations (e.g., "If people know I take PrEP, they will think I am responsible."), and two additional variables were created to describe the number of items endorsed in each category. Additionally, participants were asked to indicate agreement on a 5-point Likert scale with six items on attitudes towards PrEP adoption, five items on how PrEP might affect their condom use, and one item on whether cost was a barrier to PrEP access; these variables were dichotomized for analyses to focus on the "somewhat or strongly agree" responses.

Analytic Plan

All analyses, unless otherwise noted, were conducted using RStudio v1.2.1335.
First, descriptive analyses were conducted to calculate frequency distributions for sociodemographic sample characteristics, means and standard for medical mistrust and associated measures in the sample, and Cronbach's alphas for internal consistency (conducted in IBM SPSS Statistics version 26) of mistrust and associated measures.

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Next, bivariate analyses were conducted to assess associations of current PrEP use with key sociodemographic characteristics, medical mistrust, and PrEP beliefs, using Pearson's chi-square tests of independence, *t*-tests, and one-way ANOVAs, as appropriate. Finally, multivariable binary logistic regressions were constructed to model sociodemographic, psychosocial, and structural covariates that predict current PrEP use, including key variables identified in literature (e.g., race/ethnicity) and through bivariate analyses (where $p < 0.10$). Adjusted regressions were stratified by race/ethnicity and were constructed using the stepAIC() function (from R's MASS package) to select the best fit model based on Akaike information criterion (AIC).

Results

Sample Characteristics

The sample of $n = 202$ sexual minority young adults (Table 1) had an average age of 26.15 (SD = 0.90, range: 24.07–28.23) and predominately consisted of cisgender men (91.1%, $n = 184$). In terms of race/ethnicity, 15.3% were Hispanic/Latinx ($n = 31$), 33.2% were Black non-Hispanic ($n = 67$), 28.2% were White non-Hispanic ($n = 57$), and 23.3% were other non-Hispanic ($n = 47$). Additionally, near-equal proportion indicated that their preferred anal sex position was exclusively or primarily "top" (39.5%) versus exclusively or primarily "bottom" (40.5%), with an additional 20.0% indicating that they were exclusively "vers" or had no preference. A majority of the sample (85.1%, $n = 172$) was insured, with 12.9% uninsured ($n = 26$) and 2.0% unsure of their health insurance status ($n = 4$). Of the 172 insured participants, 19.8% were on their parents' insurance ($n = 34$), 36.0% were on an employer-sponsored plan ($n = 62$), 34.9% were on Medicare or Medicaid ($n = 60$), and 9.3% had another type of insurance ($n = 16$). More than half primarily received healthcare from a primary care provider (56.9%, $n = 115$), followed by public or community health clinic (23.3%, $n = 47$) and ER or urgent care (89%, $n = 18$); 10.9% of the sample ($n = 22$) indicated that they do not receive medical care. When asked about difficulty affording healthcare costs, 29.9% reported it was somewhat or extremely difficult ($n = 50$), 25.7% reported it was neither difficult nor easy ($n = 43$), and 44.3% indicated it was somewhat or extremely easy ($n = 74$). Most participants rated their health as somewhat or extremely good (88.6%, $n = 179$), with 7.9% self-rating as neither good nor bad ($n = 16$) and 3.5% self-rating as somewhat or extremely bad ($n = 7$).

Medical Mistrust and HIV Beliefs

As presented in Table 2, participant responses indicated low to moderate levels of medical mistrust and endorsement of "conspiracy"-related beliefs.

Pre–exposure Prophylaxis Uptake, Motivations, and Beliefs

PrEP Awareness and Uptake—A majority of the sample (98.0%, $n = 198$) had ever heard of PrEP/Truvada at the time of the assessment. Among PrEP-aware participants, 41.4% ($n = 82$) had ever taken PrEP, and 22.8% ($n = 46$) were currently taking PrEP.

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PrEP Knowledge Sources—Of the 198 participants who were aware of PrEP (Table 3), the most common sources of information were healthcare providers (66.7%, $n = 132$), the Internet (47.0%, $n = 93$), and friends (42.9%, $n = 85$).

PrEP Anticipated Stigma—One-third of the PrEP-aware participants ($n = 66$) somewhat or strongly agreed that there is stigma associated with PrEP use (Table 3). Most participants did not indicate that they anticipated experiencing stigma from people in their lives if they took PrEP. The most common person or group from whom participants expected to experience stigma was family (21.2%, $n = 42$), followed by society at large (17.7%, $n = 35$) and sexual partners (11.6%, $n = 23$). Participants were more likely to indicate anticipating positive beliefs from others if they knew the participant took PrEP, reporting an average of 4.74 (SD = 3.18) positive items and 1.66 (SD = 2.15) negative items. The most common anticipated PrEP beliefs were "I take care of my health" ($n = 123$, 62.1%), "I am prepared" ($n = 119$, 60.1%), and "I am safe" ($n = 112$, 56.6%), with those significantly associated with differences in PrEP uptake displayed in Table 3.

PrEP Beliefs—When asked if they think everyone should be on PrEP, the sample was fairly evenly split, with 28.3% saying yes ($n = 56$), 38.9% saying no ($n = 77$), and 32.8% saying they don't know ($n = 65$). Most said they would be willing to take PrEP every day (70.2%, $n = 139$), and less than a quarter agreed somewhat or strongly that the cost of PrEP limited them from accessing PrEP (22.4%, $n = 44$). Less than a quarter agreed that they are taking PrEP because they prefer condomless sex (22.4%, $n = 44$) and more than half agreed that they would acquire other STIs if their condom use were to decrease because of their PrEP use (57.1%, $n = 113$). Regarding "somewhat or strongly" agreeing with beliefs about PrEP adoption, 42.6% don't like taking pills when not sick ($n = 86$), 34.7% have concerns about remembering to take a daily pill ($n = 70$), 52.5% were interested in a long-acting injectable PrEP ($n = 106$), and 50.5% prefer a long-acting injectable over a daily pill ($n = 102$).

Bivariate Associations with Current PrEP Use

Current PrEP users were slightly older than those who reported not taking PrEP, $t(196) = -1.738$, $p = 0.078$). There were no other significant differences in PrEP use ($p > 0.10$) based on sociodemographic characteristics, preferred anal sex position, health insurance status or type, health care utilization, or self-rated health (Table 1). Higher scores on the HIV Conspiracy Beliefs Scale ($t(196) = 2.53$, $p = 0.012$), Medical Mistrust Index ($t(196) = 1.84$, $p = 0.067$), and Beliefs about Medicines Questionnaire [$t(196) = 2.86$, $p = 0.005$] were associated with lower likelihood of current PrEP use (Table 2). Current PrEP use was also more common among those who had received information about PrEP from their healthcare providers [$\chi^2(1, n = 198) = 11.10$, $p < 0.001$], those who endorsed a greater number of positive anticipated PrEP beliefs [$t(196) = -2.86$, $p = 0.005$], those who felt that everyone should be on PrEP [$\chi^2(2, n = 196) = 17.54$, $p < 0.001$], those who feel that taking PrEP would increase their likelihood of getting an STI because of decreased condom use [$\chi^2(1, n = 198) = 5.26$, $p = 0.022$], and who were interested in ($\chi^2(1, n = 198) = 14.73$, $p < 0.001$) or would prefer [$\chi^2(1, n = 198) = 6.05$, $p = 0.014$] a long-acting injectable PrEP (Table 3). Those with negative beliefs around PrEP adoption, including those who reported they

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do not like taking pills if they are not sick [$\chi^2(1, n = 198) = 11.48, p < 0.001$] and those who reported concerns about remembering to take a daily pill [$\chi^2(1, n = 198) = 10.63, p = 0.001$], were less likely to report current PrEP use (Table 3).

Multivariable Models Predicting Current PrEP Use

Unadjusted binary logistic regression models were run on significant variables identified in bivariate analyses, i.e., those with $p < 0.10$, and key variables from the relevant literature (i.e., race/ethnicity, race-based mistrust; Table 4). Adjusted binary logistic regressions were run stepwise, using the stepAIC() function in R's MASS package, to select the best fit model, for the overall sample, and were then stratified dichotomously by race/ethnicity for White participants and participants of color. In the adjusted regression model for the sample overall, there were significantly greater odds of current PrEP use ($p < 0.10$) among those who received PrEP information from a healthcare providers, those who felt they would contract other STIs if PrEP use decreased their condom use, and those with an interest in long-acting injectable PrEP; there was also significantly lower odds of current PrEP use ($p > 0.10$) among those who were unsure if everyone should be on PrEP, who reported that they do not like taking pills when not sick, and who had concerns about remembering to take a daily pill.

In the stratified adjusted regression model for White participants, current PrEP use was significantly associated with age, such that older participants were more likely to be current PrEP users (AOR = 2.70, 95% CI = 1.08, 7.97; $p = 0.047$), and interest in long-acting injectable PrEP (AOR = 6.76, 95% CI = 1.43, 44.08; $p = 0.026$). Current PrEP use in White participants was less likely among those who do not like taking pills when not sick (AOR = 0.21, 95% CI = 0.03, 1.02; $p = 0.066$) and those who reported concerns about remembering to take a daily pill (AOR = 0.15, 95% CI = 0.02, 0.8; $p = 0.051$). In the stratified adjusted regression model for participants of color, which included Hispanic/Latinx, Black non-Hispanic, and other non-Hispanic participants, current PrEP use was associated with increased odds of believing there is stigma associated with taking PrEP (AOR = 3.00, 95% CI = 0.95, 10.33; $p = 0.068$), endorsing a greater number of positive beliefs about PrEP (AOR = 1.25, 95% CI = 1.05, 1.54; $p = 0.020$), receiving information about PrEP from a healthcare provider (AOR = 5.14, 95% CI = 1.42, 24.09; $p = 0.021$), and believing their STI risk would increase if PrEP uptake reduced their condom use (AOR = 4.03, 95% CI = 1.33, 13.88; $p = 0.019$). Additionally, current PrEP use among participants of color was less likely among those who scored higher on the Medical Mistrust Index (AOR = 0.46, 95% CI = 0.19, 1.04; $p = 0.068$), were unsure if everyone should be on PrEP (AOR = 0.21, 95% CI = 0.05, 0.71; $p = 0.020$), reported not liking taking pills when not sick (AOR = 0.32, 95% CI = 0.08, 1.09; $p = 0.077$), and were concerned about remembering to take a daily pill (AOR = 0.30, 95% CI = 0.08, 1.00; $p = 0.060$).

Discussion and Implications for Clinical Practice

Our study sought to better understand the contributions of PrEP attitudes, provider informational support on PrEP, PrEP-related stigma, and medical mistrust on PrEP behaviors among YSMM and transgender women. Notably, only 23.2% of the sample reported

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currently being on PrEP at the time of the study, despite all participants being PrEP-eligible. This finding is concerning for several reasons. PrEP was FDA approved in 2012, yet almost a decade later, this extremely effective biomedical prevention strategy is still widely underutilized [9]. The study presented here took place in NYC, where sexual health care is largely accessible due to a well-resourced public health infrastructure, effective public transit system, and significant programming focused on the needs of LGBTQ communities in the five boroughs. Given the extensive efforts to educate and provide PrEP in NYC, our study suggests that there are still formidable barriers to PrEP uptake, even in the most favorable conditions (e.g., free or low-cost PrEP programs, clinics specializing in serving gay and transgender people, PrEP billboards and subway advertisements, etc.). In the context of our study in particular, virtually all participants were aware and even had at least some knowledge about PrEP, as they were recruited from a larger parent investigation on HIV prevention, mental health and substance use that provided some PrEP education throughout the duration of the longitudinal study. Yet, slightly less than a quarter of participants in the study presented here reported being on PrEP, suggesting that despite material access, YSMM and transgender women may continue to have concerns about PrEP.

Broadly, our findings advocate for the development of culturally sensitive, LGBTQ health competent, and accessible strategies to assuage the concerns of YSMM and transgender women, two distinct (but often conflated) communities under the LBGTQ umbrella. We found that, overall, participants were less likely to be currently taking PrEP if they endorsed negative attitudes concerning having to take medications when not sick and having to remember to take medications daily. These findings underscore a continued need to further cultivate PrEP buy-in among young SMM and transgender women, as the behavioral mechanics that drive PrEP's effectiveness (i.e., daily adherence) remain a persistent barrier. Our findings align with prior studies that highlight concerns among SMM and transgender women around taking a pill every day, especially when not sick, as barriers to PrEP uptake [18, 45, 46]. A recent study on PrEP use among SMM found that individuals believed they could only manage taking a daily pill if they perceived their risk to be high, even those who preferred non-daily dosing methods (e.g., event-based dosing) had difficulty remembering doses [47]. Similarly, researchers have found that trans women have also expressed difficulty with taking pills, suggesting there is substantial interest in alternative modalities for PrEP consumption, specifically PrEP delivered via long-term injectable and other HIV prevention options [45, 48].

Taken together, these various findings suggest that communication around preventative health specifically must be bolstered in order to help increase PrEP uptake, especially among those who are concerned with having to take a daily pill. Historically, the focus on young men's *preventative* health, especially sexual and reproductive health, has been largely absent [87, 88]. For example, recent research has found that young sexual minority men are largely not aware that boys and men are also candidates for the HPV vaccine, representing missed opportunities to prevent HPV-related cancers [89]. Moreover, young men think of themselves as essentially healthy, and thus without a clear need for preventative healthcare [88, 90], which our findings also indicate. Similarly, transgender women may not have been socialized to care for their health in the same way that many cisgender girls and women are

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from an early age (e.g., annual exams), suggesting that preventative health care must also be emphasized for trans women in order to increase PrEP uptake.

When stratified by race and ethnicity, however, White participants experienced different barriers and facilitators to PrEP uptake than did participants of color. While White participants' PrEP uptake was greater with increased age and less likely among those with negative medication-related beliefs about PrEP, PrEP uptake among participants of color was more informed by medical mistrust, PrEP stigma, sources of PrEP information, beliefs about PrEP risk compensation, and medication-related beliefs about PrEP. Our study suggests that for participants of color, but not for White participants, endorsement of risk compensation beliefs related to increased STI risk resulting from decreased condom use is associated with increased PrEP uptake. The literature is mixed on whether PrEP use is associated with an increase in STIs [49–54], but it is important to note that increased incidence of STIs following PrEP initiation could be due to more frequent and consistent screening, as STI testing is part of the recommended quarterly bloodwork for PrEP patients [55, 56]. These findings suggest it is critical for public health to reframe PrEP-HIV risk messaging to emphasize PrEP as a tool for agency in preventative health care, rather than focusing on "high risk" categories and deficit-centric communication about disease prevention. Focusing on the "high risk" aspect serves only to reinforce PrEP-stigmatizing attitudes that contribute to limited PrEP engagement [83–85]. Furthermore, attending to concerns about risk compensation [86] can be reframed positively, i.e., to position PrEP as a strategy to monitor one's STI status consistently. Health communication strategies in HIV prevention have capitalized on use of counter-narratives that attend to prioritized populations' negative beliefs about a sexual health promotion behavior, and positively frame messages to simultaneously minimize stigma toward the behavior while eliciting sexual health empowerment. For PrEP, it would be important to position PrEP as a means to increase feelings of protection and control over personal health. This may improve attitudes among those who attribute having to take medications to sickness or sick persons, and who have limited self-efficacy for daily PrEP adherence. Similarly, providers should also pay attention to patients' positive associations with PrEP, including HIV prevention preparedness, safety, and caring for one's health, as a majority of participants in this study endorsed such beliefs. Providers' continual reinforcement of these emergent positive associations with PrEP may help to increase uptake on a broader, community-based level. This affirming, comprehensive, and prevention-oriented approach may help assuage concerns about increased STIs, lay the foundation for successful patient-provider relationships, and normalize sexual and gender minority health needs. In doing so, both clinicians and SMM may be more likely to consider PrEP a beneficial tool for HIV prevention.

Additionally, roughly one-third of our sample reported never having received any PrEP information from a healthcare provider, supporting the argument that PrEP rollout efforts are not being maximized for HIV priority populations. Research continues to show that clinicians are largely unprepared to offer and prescribe PrEP due to a variety of reasons, including limited awareness and accurate knowledge [57, 58], concerns about side effects and development of antiretroviral resistance [59], discomfort testing for HIV infection, discomfort prescribing PrEP, concerns about insurance coverage, and the time needed to

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provide risk-reduction counseling [57, 60]. Moreover, previous research has shown that primary care providers perceive infectious disease physicians as being better suited to offer PrEP [23, 61]. Yet, primary care providers prescribe birth control, which could be perceived as being more appropriately prescribed by a gynecologist, indicating it is possible to integrate PrEP into primary care clinical practice.

Given PrEP's effectiveness in preventing HIV infection, implementation efforts must prioritize strategies to raise buy-in among providers about PrEP, including training on incorporating PrEP as part of their HIV prevention-related service provision and methods. Providers' capacity to successfully expand their HIV prevention services to include PrEP and scaling up PrEP-related provider communication requires having accurate PrEP knowledge and cultural sensitivity and LGBTQ health competence to engage young SMM and transgender women [18, 74, 75] and regularly screen patients' sexual histories. In prior studies, researchers have observed that many clinicians do not regularly take sexual histories [76, 77] and that young SMM and transgender women often fear or anticipate stigma from their healthcare providers, thereby avoiding discussions about their sexual health [32, 78]. This places the onus on clinicians to initiate non-judgmental conversations with patients about HIV prevention in order to determine if PrEP is a beneficial strategy. Therefore, providers should be trained on skills to facilitate an open, non-judgmental environment where their patients can discuss their gender and sexual identities, sexual behaviors, attitudes about PrEP, and PrEP-related concerns (e.g., how to navigate barriers to adopting PrEP) [79–81].

We also observed that YSMM and transgender women who reported receiving PrEP information from a healthcare provider were more likely to be currently taking PrEP compared to those who did not receive any information. These findings closely align with prior research that observed YSMM who reported HIV prevention discussions with a healthcare provider were more likely to increase sexual health promotion behaviors (e.g., HIV/STI testing) compared to those who reported no discussions [62]. Furthermore, this was a significant driver of current PrEP use for participants of color, but not for White participants, suggesting that PrEP education from healthcare providers may be particularly important to facilitating PrEP uptake for SMM and trans women of color, who face disproportionate burdens of HIV incidence and prevalence [5]. For providers treating trans women specifically, it is also important to be aware of the unique concerns this population may have, such as concerns related to hormone medications [63, 73]. In this sense, providers must broadly be competent in many facets of LGBTQ health, and not only around SMM's needs. Ultimately, these findings support the significant role that healthcare providers have in promoting sexual risk reduction strategies, which is ever more critical in facilitating the adoption of PrEP in our sample given that in New York City, it can only be accessed upon seeing a health care provider and securing a prescription.

While medical mistrust was not significantly associated with PrEP uptake in the overall sample, YSMM and trans women of color were less likely to report current PrEP use when they scored higher on the Medical Mistrust Index. While not a strongly significant result, this finding does align with several studies suggesting that mistrust may inhibit PrEP uptake, particularly among people of color [64, 65]. These findings suggest that barriers to

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engaging in PrEP may differ for different racial/ethnic groups and across different levels of the PrEP continuum, and warrant further exploration. Providers should be aware of mistrust around PrEP, particularly for marginalized populations for whom this mistrust may be driven by historical and ongoing inequities [66], as having open and affirming conversations about these beliefs may help to assuage anxiety about biomedical interventions like PrEP. Previous research has also documented transphobia-related medical mistrust among trans women specifically [73], suggesting the need for tailored strategies to increase trans health competence. Addressing mistrust among both SMM and trans women may especially be important when long-acting injectable (LAI) PrEP becomes available, as may very soon be the case [48, 67, 68].

Finally, PrEP-related stigma was not a significant predictor for White participants, but trended toward significance for participants of color. For the latter group, PrEP stigma was associated with increased odds of PrEP use, suggesting more research needs to be done that further disentangles the complicated relationship between stigma and PrEP use among distinct subgroups of SMM, particularly communities of color. Overall, the findings presented here echo previous calls for implementation strategies that are not “risk” based, as risk-based approaches exacerbate stigma, miss opportunities to incorporate sex-positive messaging, and ultimately hinder PrEP uptake [69, 70].

Limitations

Though our findings contribute important insight into PrEP behaviors among young SMM and transgender women, our study has several limitations. First, regarding receipt of PrEP information from a provider, we cannot ascertain whether this positive association is further distinguished by patient-solicited versus provider-initiated discussions. Specifically, participants who were actively engaged or motivated to seek PrEP may have been more inclined to have discussions about PrEP with their provider. Irrespective of this limitation, our findings underscore the tangible benefit of clinicians who are comfortable with discussing and prescribing PrEP. Through our study, we were unable to assess participants’ PrEP indication status. Though this would assist our understanding of PrEP uptake among those who are PrEP-eligible, prior studies have suggested that PrEP indications are not time-stable [28, 71]. In other words, while all participants were PrEP-indicated at the baseline of the parent study, that may not have remained true at the time of data collection for our study; therefore, assessing beliefs about PrEP, PrEP stigma, PrEP resources, and medical mistrust remain salient for the current sample.

This study is likely susceptible to selection bias. Participants were recruited from a parent study which regularly conducts HIV testing and counselling, including PrEP education, thereby potentiating a skew in the proportion of participants engaged along the PrEP continuum (e.g., PrEP awareness and uptake). The cross-sectional study also does not provide evidence for a causal relationship between the examined factors and PrEP uptake. Further longitudinal investigation would be necessary to explore whether factors such as healthcare provider recommendation or positive PrEP messages increase PrEP uptake. Additionally, there were analytic limitations due to the study’s sample size. While this study included transgender and nonbinary participants, it did not enroll a sufficient number

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to draw meaningful conclusions or recommendations about gender minority people. The perspectives of gender minority people matter and should be given research priority that does not group them in with and conflate their experiences and needs with those of sexual minority men (indeed, research has shown that in comparison with SMM, trans women are more likely to be unemployed, homeless, have less formal education and live at or below the poverty line [72], suggesting tailored approaches are urgently needed). There also was not a sufficient number of participants in certain racial/ethnic groups, including Asian and Native American individuals, to allow for assessment of their unique experiences and health disparities.

Finally, this study took place in NYC, where participants generally have increased access to LGBTQ-competent healthcare providers and city- and -state funded resources (e.g., PrEP-AP) to obtain PrEP low-cost or free in comparison to people in other parts of the US. The wide availability of resources specifically designed to serve the needs of sexual and gender minority populations may explain why we did not find racial, financial, or healthcare access-related disparities in PrEP uptake in our sample, as we had expected. Thus, while these findings may not be generalizable to parts of the country with less robust public health infrastructure, it may be that these concerns are amplified in lower resource settings.

Future Research Directions

Further study is needed to elucidate the role of PrEP in perceived risk and subsequent changes in sexual behavior [26, 91]. It would be highly informative to assess the factors that promote, or the contexts that facilitate, the use of combination HIV prevention, especially among young SMM and transgender women who fear PrEP will lead to decreased condom use. Related, though provider informational support was associated with current PrEP use, we were unable to elucidate the types of information that were useful in facilitating uptake. Exploring the types of PrEP information that are most useful for young SMM and transgender women will raise the impact of PrEP communications efforts on these communities' PrEP behaviors. In particular, it is critical that more research looks specifically at the unique concerns and challenges facing trans women, as much of the literature (this study included) includes both SMM and transgender women in the same sample. For example, a recent study found that trans women were concerned about an "explicit bias against transgender women who take PrEP", suggesting that more research is needed to examine trans women may experience stigma and other PrEP-related barriers differently than SMM [45].

Research to monitor changes in PrEP beliefs and identifying optimal strategies for service provision must account for diversity in perspectives among populations prioritized for HIV prevention efforts. The current study's findings were derived from a sub-study within the P18 Cohort Study in which enrollment criteria included being assigned male at birth. Across data collection waves of the P18 Cohort Study, some participants transitioned and reported their gender as female or non-binary. The perspectives of gender minority people matter and should be given research priority that does not group them in with and conflate their experiences and needs with those of sexual minority men. Further research is also needed to

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explore how young SMM may experience mistrust, as the literature suggests mistrust may be a barrier.

Conclusion

Monitoring PrEP perceptions and attitudes as the availability of new modalities emerge will facilitate a better understanding of community buy-in among YSMM and transgender women and will assist in scaling-up marketing strategies that make PrEP awareness, access, and adoption more equitable for those who seek to benefit from PrEP. The findings from our study further support HIV expert consensus that young SMM and transgender women underutilize preventative healthcare [92, 93]. Although Truvada was approved as PrEP for HIV prevention in 2012, PrEP uptake continues to lag among communities who would benefit the most from widespread adoption. The onus is on public health and medical professionals to expand PrEP use among young SMM and transgender women, and to do so with approaches that recognize the unique needs of both SMM and trans communities. PrEP-related health communications provide an important platform to scale up PrEP implementation efforts; public health media and clinic-delivered communications around PrEP need to attend to the local salient barriers experienced by young SMM and transgender women and promote equitable access to, and support for, PrEP adoption. If appropriate and culturally-sensitive messages are implemented effectively, these health communication strategies possess potential to reduce the burden of the HIV epidemic that disproportionately affects young SMM and transgender women.

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Appendix 1

HIV Conspiracy Beliefs

1. A lot of information about AIDS is being held back from the public.
2. HIV is a manmade virus.
3. There is a cure for AIDS, but it is being withheld from the poor.
4. The government is telling the truth about HIV.
5. HIV is a form of genocide against racial and ethnic minority people.
6. HIV was created by the government to control racial and ethnic minority people.
7. The medicine used to treat HIV causes people to get AIDS.
8. The medicine that doctors prescribe to treat HIV is poison.
9. People who take the new medicines for HIV are human guinea pigs for the government.

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10. The government is deceiving people about the origins of HIV.
11. The pharmaceutical industry is deceiving people about the origins of HIV.
12. The government is deceiving people about treatment for HIV.
13. The pharmaceutical industry is deceiving people about treatment for HIV.
14. The government and pharmaceutical industry are working together to deceive people about treatment for HIV.
15. The government wants to keep people sick because they make a lot of money from ART.
16. The pharmaceutical industry wants to keep people sick because they make a lot of money from ART.
17. The cure for HIV is being withheld so more money can be made off of HIV medication.
18. Rich people have access to better HIV medication.
19. Rich people have access to the cure for HIV.
20. Pharmaceutical companies developed PrEP to make more profits.
21. HIV was developed by the government to target drug users.
22. HIV was developed by the government to target sexual and gender minority populations.
23. HIV was developed by the government to target Black/African American groups.
24. HIV was developed by the government to target Asian groups.
25. HIV was developed by the government to target Native American groups.
26. HIV was developed by the government to target Latino/a groups.
27. HIV was developed by the government to target White groups.

Group–Based Medical Mistrust Scale (GBMMS)—Racial/Ethnic Group

1. Doctors and health care workers sometimes hide information from my racial/ethnic group.
2. Doctors have the best interests of people of my racial/ethnic group in mind
3. People of my racial/ethnic group should not confide in doctors and health care workers because it will be used against them.
4. People of my racial/ethnic group should be suspicious of information from doctors and health care workers.
5. People of my racial/ethnic group cannot trust doctors and health care workers.
6. People of my racial/ethnic group should be suspicious of modern medications.

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7. Doctors and health care workers treat people of my racial/ethnic group like "guinea pigs."
8. People of my racial/ethnic group receive the same medical care from doctors and health care workers as people from other groups.
9. Doctors and health care workers do not take the medical complaints of people of my racial/ethnic group seriously.
10. People of my racial/ethnic group are treated the same as people of other groups by doctors and health care workers.
11. In most hospitals, people of different racial/ethnic groups receive the same kind of care.
12. I have personally been treated poorly or unfairly by doctors or health care workers because of my racial/ethnic group.

Group–Based Medical Mistrust Scale (GBMMS)—Sexual/Gender Minority Group

1. Doctors and health care workers sometimes hide information from my sexual/gender minority group.
2. Doctors have the best interests of people of my sexual/gender minority group in mind
3. People of my sexual/gender minority group should not confide in doctors and health care workers because it will be used against them.
4. People of my sexual/gender minority group should be suspicious of information from doctors and health care workers.
5. People of my sexual/gender minority group cannot trust doctors and health care workers.
6. People of my v should be suspicious of modern medications.
7. Doctors and health care workers treat people of my sexual/gender minority group like "guinea pigs."
8. People of my sexual/gender minority group receive the same medical care from doctors and health care workers as people from other groups.
9. Doctors and health care workers do not take the medical complaints of people of my sexual/gender minority group seriously.
10. People of my sexual/gender minority group are treated the same as people of other groups by doctors and health care workers.
11. In most hospitals, people of different sexual/gender minority groups receive the same kind of care.

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12. I have personally been treated poorly or unfairly by doctors or health care workers because of my sexual/gender minority group.

Beliefs about Medicines Questionnaire

1. Newer medications are more effective than older ones.
2. Most medications are addictive.
3. People who take medications should stop their treatment for a while every now and again.
4. Medications only work if they are taken regularly.
5. Medications do more harm than good.
6. Medications are not natural remedies.
7. All medications are poisons.
8. It is better to do without medications.
9. Natural remedies are safer than medications.
10. Stronger medications are more dangerous than weaker medications.
11. Medications are a necessary evil.
12. Doctors place too much trust in medications.
13. If doctors had more time with patients, they would prescribe fewer medications
14. There is a big different between a medication and a drug.
15. The medication you get is more important than the doctor you see.
16. Doctors use too many medications.
17. Most medications are safe.
18. People are prescribed too many medications these days.
19. People shouldn't take a medication until they really need it.

Trust in Physician Scale (TIPS)

1. I doubt that my doctor really cares about me as a person.
2. My doctor is usually considerate of my needs and puts them first
3. I trust my doctor so much that i always try to follow his/her advice
4. If my doctor tells me something is so, then it must be true.
5. I sometimes distrust my doctor's opinion and would like a second one.
6. I trust my doctor's judgment about my medical care.
7. I feel my doctor does not do everything he/she should for my medical care.

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8. I trust my doctor to put my medical needs above all other considerations when treating my medical problems
9. My doctor is a real expert in taking care of medical problems like mine.
10. I trust my doctor to tell me if a mistake was made about my treatment.
11. I sometimes worry that my doctor may not keep the information we discuss totally private.

Trust in Healthcare System

1. How much do you trust the healthcare system?
2. How willing are you to put your life in the hands of the healthcare system?
3. How confident are you in the healthcare system's ability to care for your health?
4. How much do you trust the healthcare system to give you the best possible care?

Medical Mistrust Index (MMI)

1. Patients have sometimes been deceived or misled by health care organizations.
2. When health care organizations make mistakes, they usually cover it up.
3. Health care organizations have sometimes done harmful experiments on patients without their knowledge.
4. Health care organizations don't always keep your information totally private.
5. Mistakes are common in health care organizations.
6. I trust that health care organizations will tell me if a mistake is made about my treatment.
7. The patient's medical needs come before other considerations at health care organizations.
8. Health care organizations are more concerned about making money than taking care of people.
9. Health care organizations put the patient's health first.
10. Patients should always follow the advice given to them at health care organizations.
11. I typically get a second opinion when I am told something about my health.
12. They know what they are doing at health care organizations.
13. I trust that health care organizations keep up with the latest medical information.

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Table 1

Sample characteristics of P18 Health-Related Beliefs sub-study participants, by current PrEP use ($n = 202$)

		Current PrEP Use (n = 198)			
	Total % (n)	**No % (n)**	**Yes % (n)**	χ^2	***P***
Total	100.0 (202)	76.8 (152)	23.2 (46)		-
Age *	26.15 (0.90)	26.08 (0.91)	26.34 (0.87)	− 1.738	0.084
Race/Ethnicity					
Hispanic/Latinx	15.3 (31)	87.1 (27)	12.9 (4)		
Black non-Hispanic	33.2 (67)	75.0 (48)	25.0 (16)		
Other non-Hispanic	23.3 (47)	80.4 (37)	19.6 (9)		
White non-Hispanic	28.2 (57)	70.2 (40)	29.8 (17)	3.702	0.295
Gender					
Cisgender man	91.1 (184)	76.7 (138)	23.3 (42)		
Trans woman/non-binary	8.9 (18)	77.8 (14)	22.2 (4)	0.011	0.915
Preferred Anal Sex Position					
Exclusively or Primarily “Top”	39.5 (75)	73.3 (55)	26.7 (20)		
Exclusively “Vers”/No Preference	20.0 (38)	86.8 (33)	13.2 (5)		
Exclusively or Primarily “Bottom”	40.5 (77)	74.0 (57)	26.0 (20)	2.922	0.232
Health Insurance Status					
Insured	85.1 (172)	74.7 (127)	25.3 (43)		
Uninsured	12.9 (26)	87.5 (21)	12.5 (3)	1.903	0.168
Insurance Type					
Parents’ insurance	19.8 (34)	88.2 (30)	11.8 (4)		
Employer-sponsored	36.0 (62)	68.9 (42)	31.1 (19)		
Medicare/Medicaid	34.9 (60)	74.6 (44)	25.4 (15)		
Other	9.3 (16)	68.8 (11)	31.3 (5)	4.701	0.195
Primary Healthcare Utilization					
Primary Care Provider	56.9 (115)	76.3 (87)	23.7 (27)		
Public or Community Health Clinic	23.3 (47)	68.1 (32)	31.9 (15)		
ER or Urgent Care	8.9 (18)	88.2 (15)	11.8 (2)		
I do not receive medical care	10.9 (22)	90.0 (18)	10.0 (2)	5.217	0.157

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		Current PrEP Use (n = 198)			
	Total % (n)	**No % (n)**	**Yes % (n)**	χ^2	***P***
Difficulty affording healthcare costs					
Somewhat or extremely difficult	29.9 (50)	83.7 (41)	16.3 (8)		
Neither difficult nor easy	25.7 (43)	75.0 (30)	25.0 (10)		
Somewhat or extremely easy	44.3 (74)	70.3 (52)	29.7 (22)	2.866	0.239
Self-Rated Health					
Somewhat or extremely good	88.6 (179)	76.1 (134)	23.9 (42)		
Neither good nor bad	7.9 (16)	80.0 (12)	20.0 (3)		
Somewhat or extremely bad	3.5 (7)	85.7 (6)	14.3 (1)	0.441	0.802

*Reported as M (SD) with t statistic in place of χ^2 statistic

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Table 2

Medical mistrust and HIV "conspiracy beliefs" among P18 Health-Related Beliefs sub-study participants, by current PrEP use ($n = 202$)

		Current PrEP Use (n = 198)			
Measure	**Total M (SD)**	**No M (SD)**	**Yes M (SD)**	***t***	***P***
HIV Conspiracy Beliefs scale	2.49 (0.89)	2.58 (0.89)	2.20 (0.86)	2.534	0.012
Group-Based Medical Mistrust Scale					
Sexual and gender minority group	2.53 (0.82)	2.57 (0.79)	2.38 (0.94)	1.387	0.167
Racial/ethnic group	2.42 (0.81)	2.46 (0.83)	2.25 (0.78)	1.581	0.115
Trust in Physician Scale	2.72 (0.62)	2.75 (0.65)	2.63 (0.57)	1.086	0.279
Medical Mistrust Index	3.11 (0.62)	3.16 (0.59)	2.96 (0.72)	1.842	0.067
Beliefs about Medicines Questionnaire	2.97 (0.54)	2.97 (0.60)	2.69 (0.50)	2.860	0.005

Some items were modified in the above scales. Please see "Appendix 1" section for the items included in each scale

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Table 3

Pre-exposure prophylaxis awareness, uptake, information sources and beliefs among PrEP-aware P18 Health-Related Beliefs sub-study participants (n = 198)

		Current PrEP Use			
	Total % (*n*)	**No % (*n*)**	**Yes % (*n*)**	χ^2	***P***
Total	100.0 (198)	76.8 (152)	23.2 (46)	-	-
Where have you received information about PrEP?					
Healthcare provider	66.7 (132)	69.7 (92)	30.3 (40)	11.101	< 0.001
Outreach worker	27.8 (55)	76.4 (42)	23.6 (13)	0.007	0.933
Sex partner	18.7 (37)	72.5 (37)	27.5 (14)	0.685	0.408
Drug sharing partner	1.5 (3)	33.3 (1)	66.7 (2)	3.222	0.073
Family member	2.5 (5)	80.0 (4)	20.0 (1)	0.030	0.862
Friend	42.9 (85)	74.1 (63)	25.9 (22)	0.586	0.444
Social media	38.9 (77)	74.0 (57)	26.0 (20)	0.531	0.466
Advertisement	36.4 (72)	72.2 (52)	27.8 (20)	1.311	0.252
Internet	47.0 (93)	73.1 (68)	26.9 (25)	1.310	0.252
Other	21.7 (43)	74.4 (32)	25.6 (11)	0.170	0.680
There is stigma associated with taking PrEP.*	33.3 (66)	69.7 (46)	30.3 (20)	2.775	0.096
If people know I take PrEP, they will think I…*					
Care about the health of my sexual partners	55.6 (110)	70.9 (78)	29.1 (32)	4.763	0.029
Am responsible	53.0 (105)	70.5 (74)	29.5 (31)	4.961	0.026
Am HIV-negative	52.5 (104)	70.2 (73)	29.8 (31)	5.311	0.021
Get tested for STIs regularly	51.5 (102)	70.6 (72)	29.4 (30)	4.502	0.034
Get tested for HIV regularly	50.0 (99)	68.7 (68)	31.3 (31)	7.249	0.007
# Positive beliefs endorsed [M (SD), *t*]	1.66 (2.15)	4.39 (3.20)	5.89 (2.88)	– 2.856	0.005
# Negative beliefs endorsed [M (SD), *t*]	4.74 (3.18)	1.64 (2.18)	1.74 (2.05)	– 0.278	0.774
Do you think everyone should be on PrEP?					
Yes	28.3 (56)	57.1 (32)	42.9 (24)		
No	38.9 (77)	81.8 (63)	18.2 (14)		
I don't know	32.8 (65)	87.7 (57)	12.3 (8)	17.544	< 0.001
The cost of PrEP limited me from accessing PrEP*	22.2 (44)	84.1 (37)	15.9 (7)	1.701	0.192

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		Current PrEP Use			
	Total % (*n*)	No % (*n*)	Yes % (*n*)	χ^2	*P*
I think that taking PrEP will impact my condom use					
Decreased condom use	41.9 (83)	73.5 (61)	26.5 (22)		
No change/Increased condom use	58.1 (115)	79.1 (91)	20.9 (24)	0.859	0.396
If I take PrEP and my condom use decreases, I will contract other STIs *	57.1 (113)	70.8 (80)	29.2 (33)	5.262	0.022
Attitudes towards PrEP adoption *					
I don't like taking pills if I'm not sick	42.6 (86)	88.4 (76)	11.6 (10)	11.479	< 0.001
I'm concerned about remembering to take a daily pill	34.7 (70)	90.0 (63)	10.0 (7)	10.631	0.001
I'm interested in long-acting injectable PrEP	52.5 (106)	66.0 (70)	34.0 (36)	14.727	< 0.001
I prefer a long-acting injectable over a once daily pill	50.5 (102)	69.6 (71)	30.4 (31)	6.047	0.014

* Responses indicate those who reported "somewhat agree" or "strongly agree" for the statement, compared to those who indicated "somewhat disagree", "strongly disagree", or "neither agree nor disagree"

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Table 4

Binary logistic regression models examining predictors of current PrEP use ($n = 198$)

	OR (95% CI)	Overall AOR (95% CI)	White AOR (95% CI)	People of Color AOR (95% CI)
Race/ethnicity				
White non-Hispanic	1.00	-	-	-
Black non-Hispanic	0.78 (0.35–1.75)	-	-	-
Hispanic/Latinx	0.35 (0.09–1.06) *	-	-	-
Other non-Hispanic	0.57 (0.22–1.42)	-	-	-
Age	1.39 (0.96–2.03) *	-	2.70 (1.08–7.97) **	-
Group-Based Medical Mistrust Scale, Race	0.72 (0.47–1.08)	-	-	-
Medical Mistrust Index	0.61 (0.36–1.04) *	-	-	0.46 (0.19–1.04) *
Beliefs about Medicines Questionnaire	0.43 (0.23–0.78) ***	-	-	-
There is stigma associated with taking PrEP.+	1.77 (0.90–3.49) *	-	-	3.00 (0.95–10.33) *
# Positive PrEP beliefs endorsed	1.18 (1.05–1.32) ***	-	-	1.25 (1.05–1.54) **
Do you think everyone should be on PrEP?				
Yes	1.00	1.00	-	1.00
No	0.30 (0.13–0.65) ***	0.50 (0.19–1.21)	-	-
I don't know	0.19 (0.08–0.46) ****	0.20 (0.07–0.54) ***	-	0.21 (0.05–0.71) **
Received PrEP info from healthcare provider				
No	1.00	1.00	-	1.00
Yes	4.35 (1.74–10.88) ***	3.70 (1.37–11.49) **	-	5.14 (1.42–24.09) **
PrEP Condom Beliefs+				
If I take PrEP & my condom use decreases, I will contract other STIs	2.28 (1.12–4.68) **	2.63 (1.12–6.42) **	-	4.03 (1.33–13.88) **
Attitudes towards PrEP adoption+				
I don't like taking pills if I'm not sick	0.28 (0.13–0.60) ***	0.32 (0.12–0.79) **	0.21 (0.03–1.02) *	0.32 (0.08–1.09) *
I'm concerned about remembering to take a daily pill	0.25 (0.11–0.60) ***	0.30 (0.10–0.85) **	0.15 (0.02–0.88) **	0.30 (0.08–1.00) *
I'm interested in long-acting injectable PrEP	4.22 (1.95–9.11) ****	3.31 (1.39–8.37) ***	6.76 (1.43–44.08) **	-
I prefer a long-acting injectable over a once daily pill	2.36 (1.18–4.72) **	-	-	-

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CI confidence interval; *OR* unadjusted odds ratio

[*] $p < 0.10$;

[**] $p < 0.05$;

[***] $p < 0.01$;

[****] $p < 0.001$

[+] Responses indicate those who reported “somewhat agree” or “strongly agree” for the statement, compared to those who indicated “somewhat disagree”, “strongly disagree”, or “neither agree nor disagree”